

Name: \_\_\_\_\_  
Student ID: \_\_\_\_\_

## Quiz 10

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

**Question 1.** (3 marks) §8.1 #24 Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \frac{\sin 2n}{1 + \sqrt{n}}$$

**Question 2.** (2 marks) §8.2 #15 Determine whether the series is convergent or divergent. If it is convergent, find its sum.

$$\sum_{n=1}^{\infty} \sqrt[n]{2}$$

**Question 3.** (5 marks) §8.2 #21 Determine whether the series is convergent or divergent by expressing  $S_n$  as a telescoping sum. If it is convergent, find its sum.

$$\sum_{n=1}^{\infty} \frac{3}{n(n+3)}$$